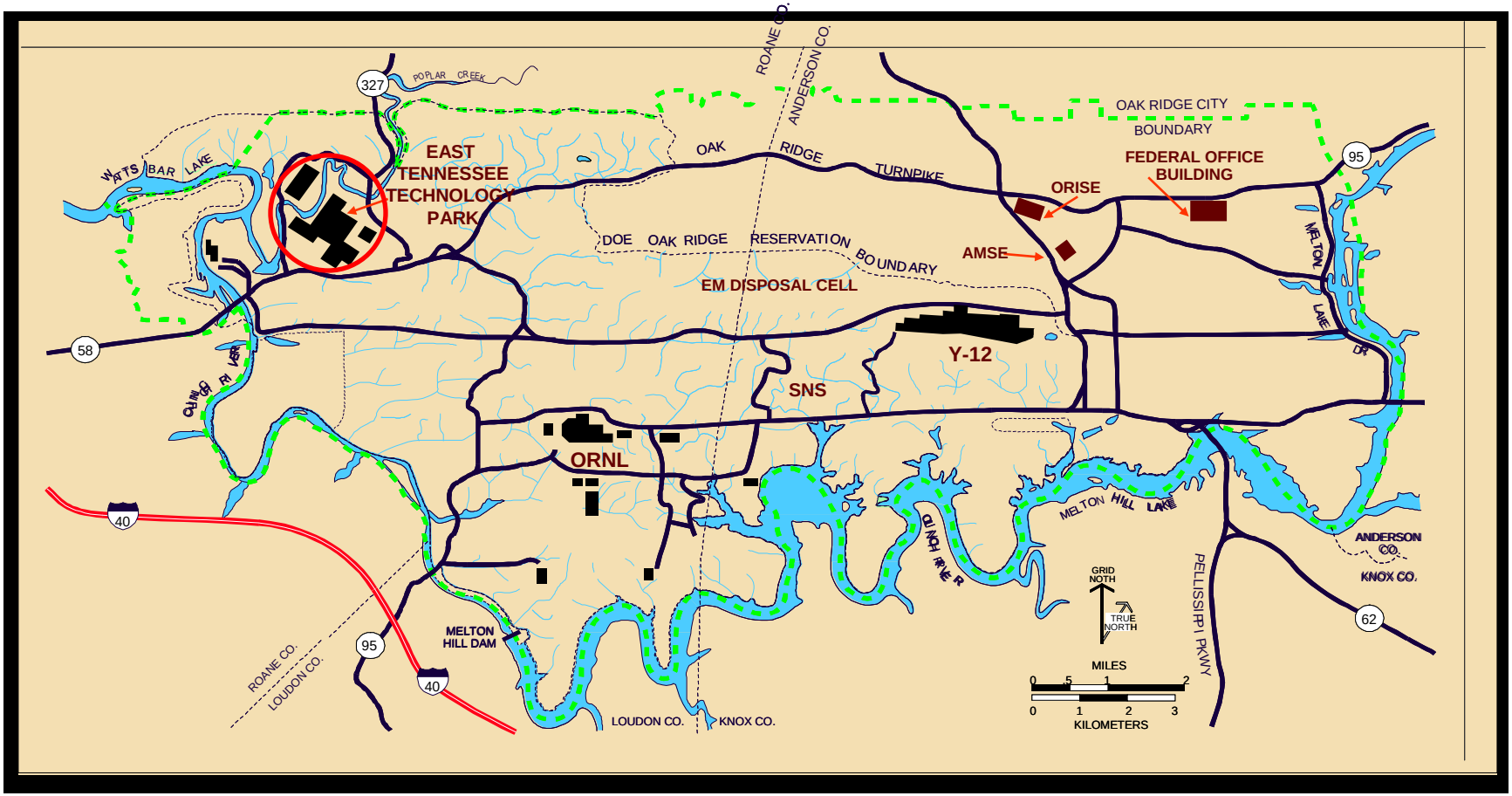
STATUS OF MITCHELL BRANCH CERCLA ACTIONS

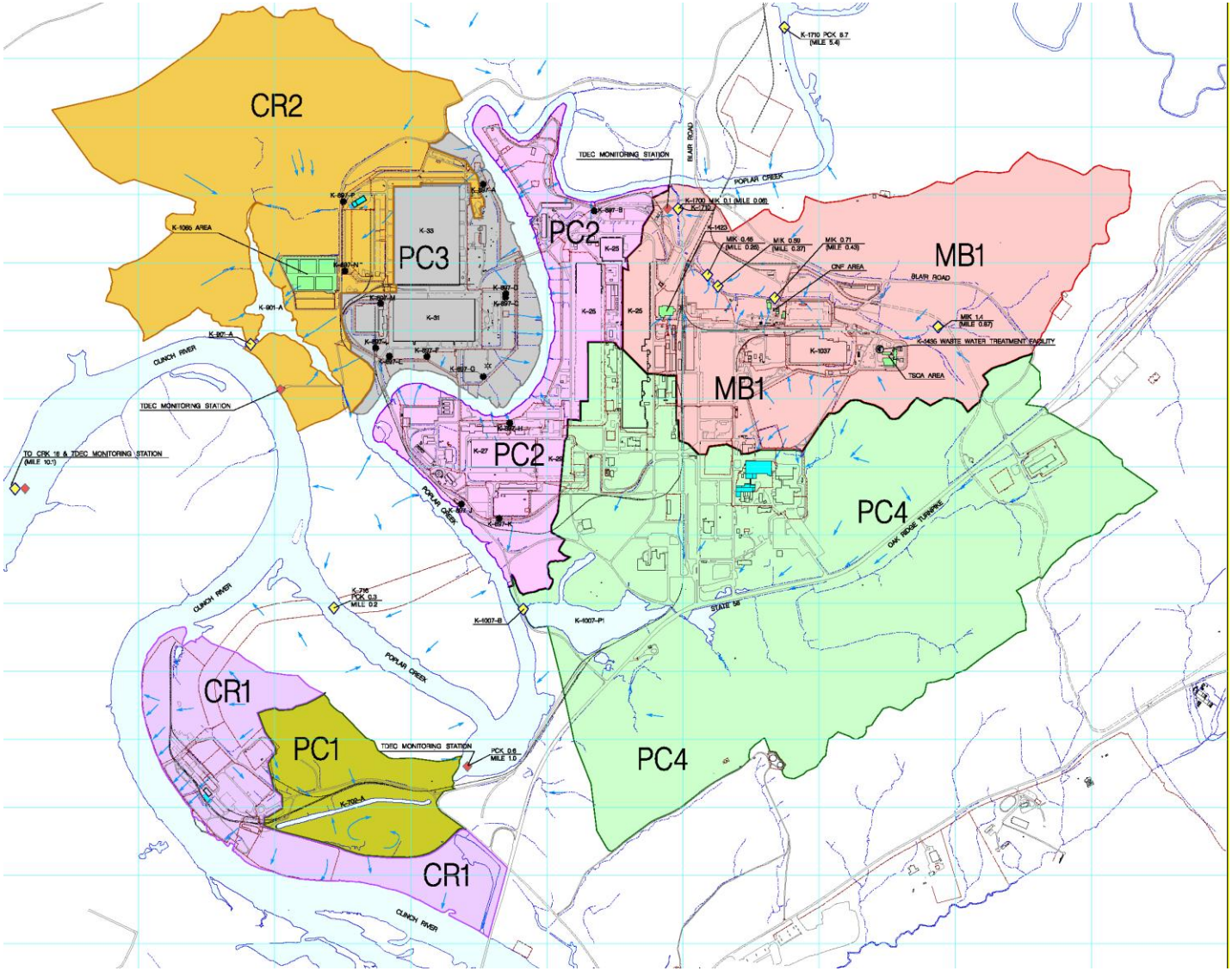
Sid Garland

Bechtel Jacobs Company, LLC

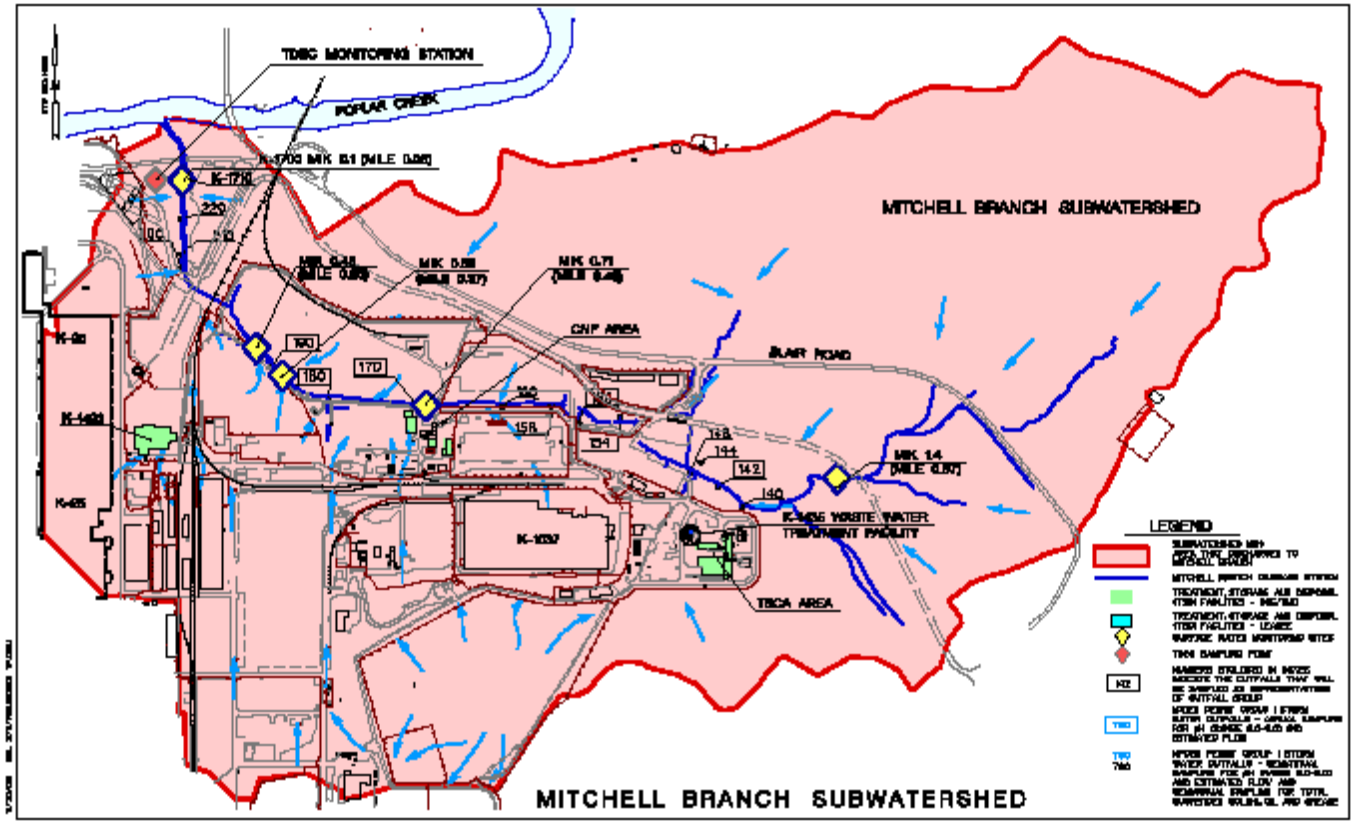
Oak Ridge Reservation



ETTP SUBWATERSHEDS



MITCHELL BRANCH WATERSHED



IMPAIRED STREAM

- State of Tennessee 303(d) lists Mitchell Branch as quality-impaired water due to PCBs and channelization
- Historical operations released VOCs and radionuclides

PAST CERCLA ACTIONS

- K-1407-B/C treatment ponds closure
- SW-31 seep VOC treatment
- CERCLA surface water/groundwater monitoring along with storm water characterization
- K-1401/K-1420 sump VOC treatment
- K-1070-C/D VOC interception trench
- Mitchell Branch VOC interception trench
- Hexavalent chromium time-critical removal action

CURRENT CERCLA ACTION

- To propose a long-term solution to reduce the release of hexavalent chromium into Mitchell Branch in order to maintain ambient water quality criteria (0.011 mg/L). Hexavalent chromium levels as high as 0.78 mg/L were measured in-stream in Mitchell Branch during 2007.

FUTURE CERCLA ACTIONS

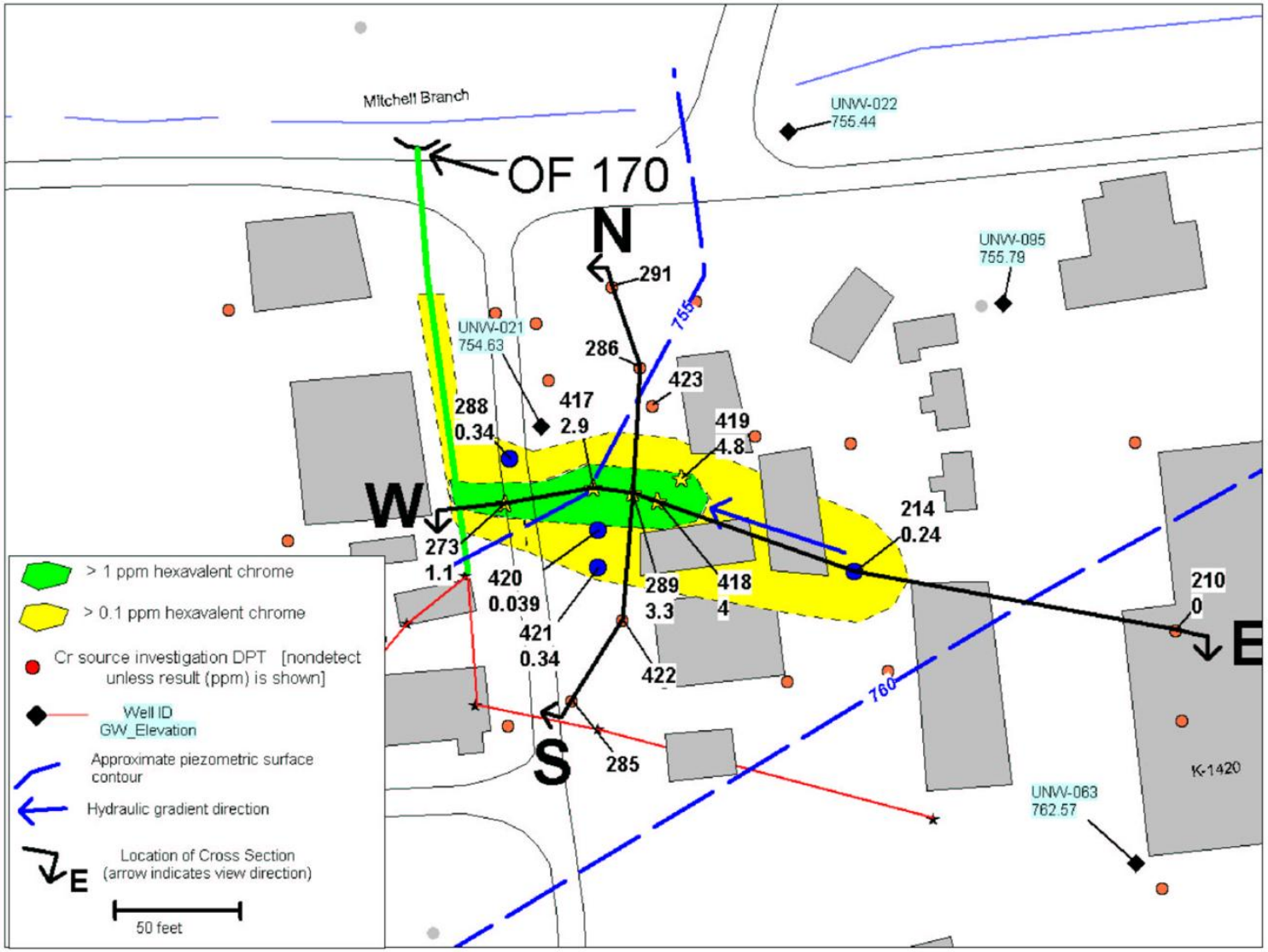
- Zone 2 ROD (signed)
  - Soil remediation for industrial receptor and sources of groundwater contamination
- Remaining Facilities AM (signed)
  - Demolition of buildings
- Sitewide ROD (ongoing RI/FS)
  - Mitchell Branch sediment
  - Groundwater
  - Ecological protection
  - Surface water

MITCHELL BRANCH

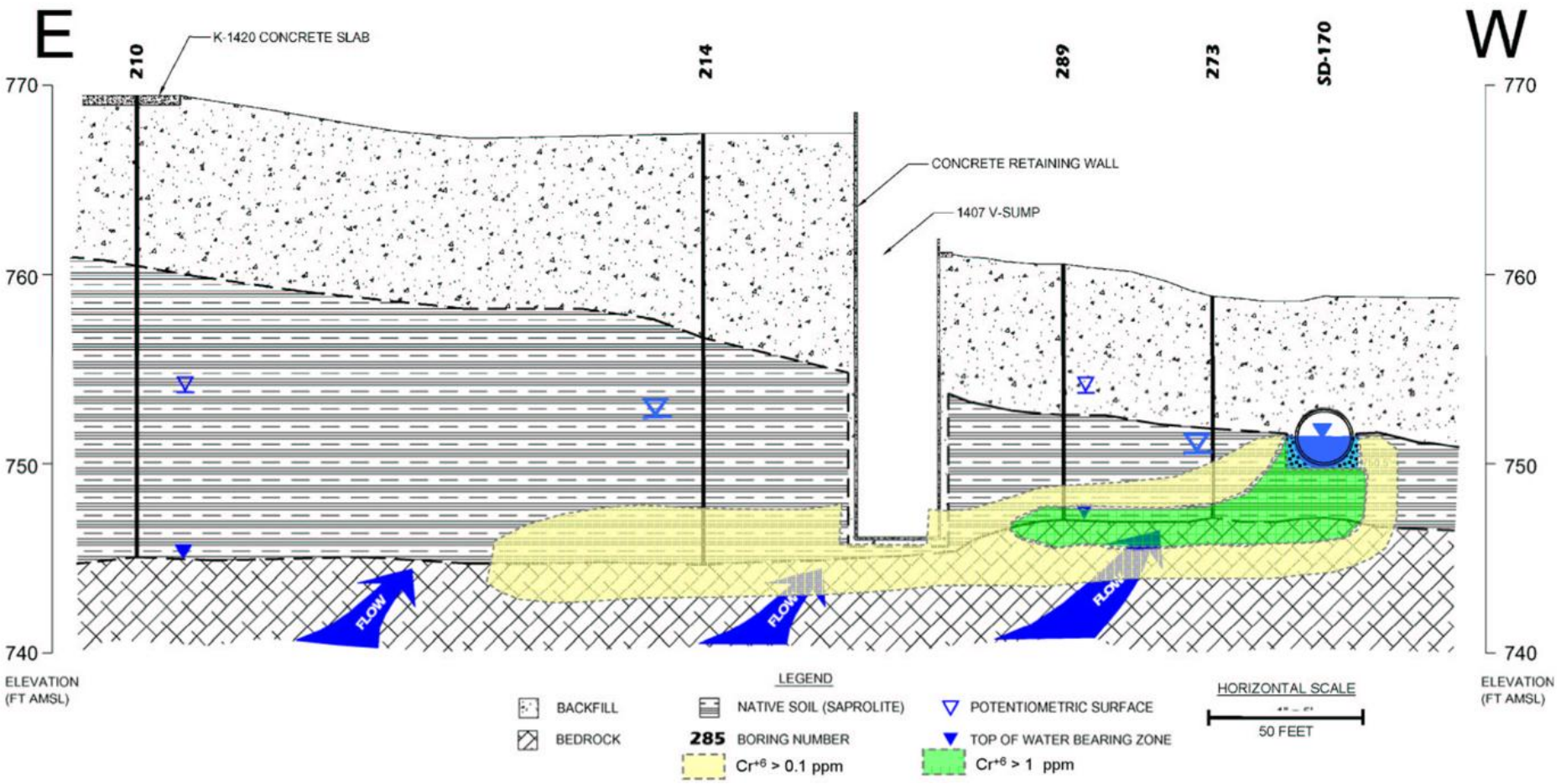
CHROMIUM APPROACH

- Source investigation/conceptual site model
- Time-critical removal action – short-term
- CNF scheduled to shut down at the end of FY 2010
- Non-time critical removal action – long-term

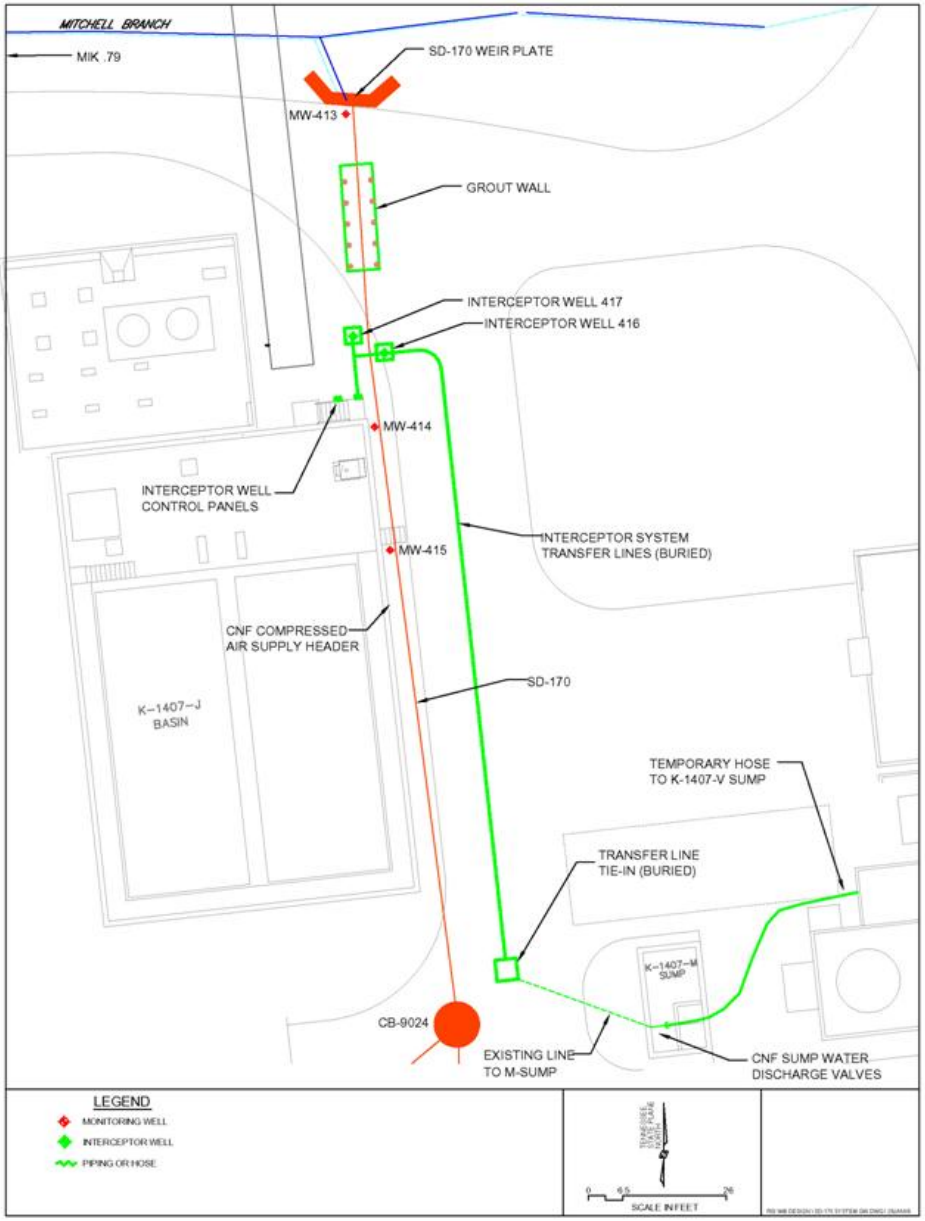
PLUME AREA


Mitchell Branch
OF 170
N
W
S
E
UNW-022
755.44
UNW-095
755.79
UNW-021
754.63
UNW-063
762.57
K-1420
755
760
291
286
423
288
0.34
417
2.9
419
4.8
214
0.24
273
1.1
420
0.039
421
0.34
289
3.3
418
4
422
285
210
0
> 1 ppm hexavalent chrome
> 0.1 ppm hexavalent chrome
Cr source investigation DPT [nondetect unless result (ppm) is shown]
Well ID
GW_Elevation
Approximate piezometric surface contour
Hydraulic gradient direction
Location of Cross Section (arrow indicates view direction)
50 feet

CONCEPTUAL SITE MODEL



TIME CRITICAL ACTION



DISCHARGE LIMITS

Parameter	Extraction Well (ug/L) maximum	Clinch River Discharge Limits (ug/L)	
		Chronic	Acute
total chromium	1540	537,984	1,075,968
TCE	390	26,087	52,173
Uranium	633	*	*
*DOE Order 5400.5 Derived Concentration Guide = 0.86, which is below 1.0			

EE/CA ALTERNATIVES

- Alternative 1, No Action
- Alternative 2, Direct Discharge to the Clinch River
- Alternative 3, Ex Situ Treatment, Chromium Reduction
- Alternative 4, Ex Situ Treatment, Central Neutralization Facility
- Alternative 5, Ex Situ Treatment, Modified Central Neutralization Facility
- Alternative 6, Ex Situ Treatment, Waste Water Treatment System
- Alternative 7, In Situ Treatment, Reactive Zone

EVALUATION CRITERIA

- Effectiveness
- Implementability
- Cost

RECOMMENDED ALTERNATIVE 3

- Existing extraction well
- Existing grout barrier wall
- Chemical reduction
- Existing air stripper
- Discharge to Clinch River through existing pipeline
- Monitoring
- Surveillance and maintenance

PATH FORWARD

- Solicit public comments on EE/CA
- Approve action memorandum
- Implement action
- Rescind CNF NPDES permit after TSCA Incinerator closure
- Document action